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LIPARIS LOESELII (ORCHIDACEAE) NEW TO SOUTH DAKOTA

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ABSTRACT

Liparis loeselii is new to the flora of South Dakota. It is documented here from three sites in Roberts County and reported without vouchers from two other sites in Roberts and Day counties. The collections are from the Prairie Coteau, a Pleistocene plateau of glacial moraines.
KEY WORDS: *Liparis loeselii*, fen, Prairie Coteau, South Dakota, wet meadow

Liparis loeselii (L.) L.C. Rich. (Loesel's twayblade, green twayblade or yellow widelip orchid) is a native orchid in North America found primarily in the north-central and northeast United States plus eastern Canada, with scattered populations in the southeast and western United States plus western Canada (Kartesz 2010). It is also found in Europe (Magrath 2002; Rolfsmeier 2007). *Liparis loeselii* has a swollen pseudobulb with a pair of elliptic to oblong, pale green basal leaves, and a raceme with pale green or yellow-green flowers. It can reach heights of up to 26 centimeters, but is generally much shorter. *Liparis loeselii* occurs in a range of mesic to wet, calcareous to acidic plant communities including mesic to wet tallgrass prairie, wet meadows, alder thickets, seeps, lakeshores, poor and rich fens as well as moist ditches, old fields, abandoned pastures, old sand pits and other disturbed, moist to wet habitats. The orchid's populations tend to decrease if open habitats are invaded by woody plants over time. The green color and normally rather short stature of *Liparis loeselii* makes it easy to overlook in taller vegetation.

Liparis loeselii has previously been documented from most states bordering South Dakota including Iowa (Niemann 1986), Minnesota (Ownbey et al. 1991; Smith 1993), Montana (Rolfsmeier 2007), Nebraska (Kaul et al. 2006) and North Dakota (Larson 1993; Stevens 1963). The orchid is not reported from South Dakota in the most recent floras covering the state (Great Plains Flora Association 1986; Larson 1993; Van Bruggen 1996). This paper documents the discovery of *Liparis loeselii* in Roberts and Day counties in the northeast corner of South Dakota. The collections and observations are from the Prairie Coteau, a Pleistocene plateau of glacial moraines, which occurs in extreme southeast North Dakota, far eastern South Dakota, far southwest Minnesota and a small area of northwest Iowa. The sites mentioned in this paper are in an area of late Wisconsin glaciation. Much of the far north portion of the Prairie Coteau in northeast South Dakota consists of rolling tallgrass prairie pasture, lakes, marshes, wet meadows and fens plus areas of deciduous forest associated with ravines and adjacent slopes.

Liparis loeselii has been vouchered from three sites in Roberts County. Specimens have been or will be deposited in the Charles A. Taylor Herbarium (SDC) at South Dakota State University in Brookings, South Dakota. Soil names are from Miller et al. (1977):

Site 1. T122N R51W Section 5 NW4 SE4 SE4 SW4. Approximately 4.7 miles north/northwest of the north edge of Summit. A rich fen occurs in a prairie pasture on the south side of a drainageway that flows west into a marsh. The soil is mapped as Marysland silt loam, wet (Mw), a Typic Calciaquoll, but is actually muck.

Liparis loeselii is infrequent and occurs in an area of less than 100 square meters. The flowers are light green and just beginning to bloom. *Liparis loeselii* is associated with *Caltha palustris*, *Carex aquatilis*, *Carex utriculata*, *Eupatorium maculatum*, and *Lysimachia thyrsiflora*. 28 Jun 1996. Voucher: *Leoschke 1624*.

Site 2. T127N R52W Section 31 NW4 SE4 NE4. An approximately 5+ acre calcareous fen, raised about 4 meters above the surrounding land, occurs in a prairie pasture about 9 miles northwest of Sisseton. A smaller calcareous fen (less than 0.3 acre) occurs north of the northwest corner of the large fen. The fens are southeast of Sica Hollow State Park. The soil in the large fen is mapped as Rauville mucky silt loam, 0 to 2 percent slopes (Ra), a Cumulic Haplaquoll. The soil in the fens is actually muck.

Liparis loeselii is infrequent in both calcareous fens. It occurs as dry infructescences with basal leaves that are withered and mushy. In the large fen the plants are found at the north/northwest edge of a large pool in a sedge mat zone. *Liparis loeselii* is associated with *Aster junciformis*, *Carex* sp., *Eleocharis pauciflora*, *Lobelia kalmii, Muhlenbergia glomerata*, *Scirpus acutus*, and *Triglochin palustris*. 7 Nov 1996. Voucher: *Leoschke 1778*.

Site 3. T127N R52W Section 31 N2 SE4. A disturbed, approximately 0.5 acre calcareous fen occurs in a drainageway in a tallgrass prairie pasture approximately 9 miles northwest of Sisseton.

Liparis loeselii is infrequent and has light green flowers. It is associated with *Carex hystericina*, *Carex interior*, *Carex pellita*, *Carex prairea*, *Glyceria striata*, *Triglochin palustris*, and *Viola nephrophylla*. 25 Jun 2009. Voucher: *Leoschke 2823*.

I observed *Liparis loeselii* at two additional sites in Roberts and Day counties that were not vouchered (Day County is just southwest of Roberts County):

Site 4. Roberts County T124N R52W Section 23 N2 NE4. *Liparis loeselii* is infrequent in a narrow band of wet meadow above a rich fen. The soil is mapped as Parnell silty clay loam (Pa), a Typic Argiaquoll. *Liparis loeselii* is associated with *Agrostis gigantea*, *Caltha palustris*, *Carex interior*, *Helenium autumnale*, *Muhlenbergia glomerata*, *Lobelia kalmii*, *Viola nephrophylla*, and *Zizia aurea*. 16 Aug 1996.

Site 5. Day County T123N R53W Section 16 SW4. *Liparis loeselii* is infrequent in a rich fen south of the headquarters road in the Waubay National Wildlife Refuge. 12 Sep 1996.

Voucher Summary USA. South Dakota. Roberts Co.: ca. 4.7 mi (7.5 km) NNW of the N edge of Summit, T122N R51W Section 5 NW4 SE4 SE4 SW4, infrequent in rich fen in prairie pasture on S side of drainageway that flows W into marsh, 28 Jun 1996, *Leoschke 1624* (SDC); ca. 9 mi (14.5 km) NW of Sisseton, SE of Sica Hollow State Park, T127N R52W Section 31 NW4 SE4 NE4, in 5+ acre (2 ha) calcareous fen in prairie pasture, 7 Nov 1996, *Leoschke 1778* (SDC); ca. 9 mi (14.5 km) NW of Sisseton, T127N R52W Section 31 N2 SE4, in disturbed ca. 0.5 acre (0.2 ha) calcareous fen in tallgrass prairie pasture, 25 Jun 2009, *Leoschke 2823* (SDC).

Conservation *Liparis loeselii* has a rank of S1 in a list of rare plants maintained by the South Dakota Natural Heritage Program (Ode 2009). This rank indicates the species is critically imperiled because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction. The primary threat to *Liparis loeselii* in South Dakota is the destruction or alteration of its wetland habitat.

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